

Absorbance Experiments

Absorbance spectra are a measure of how much light a sample absorbs. For most samples, absorbance relates to concentration and path length.

$$A_{\lambda} = \epsilon \cdot c \cdot d$$

Where:

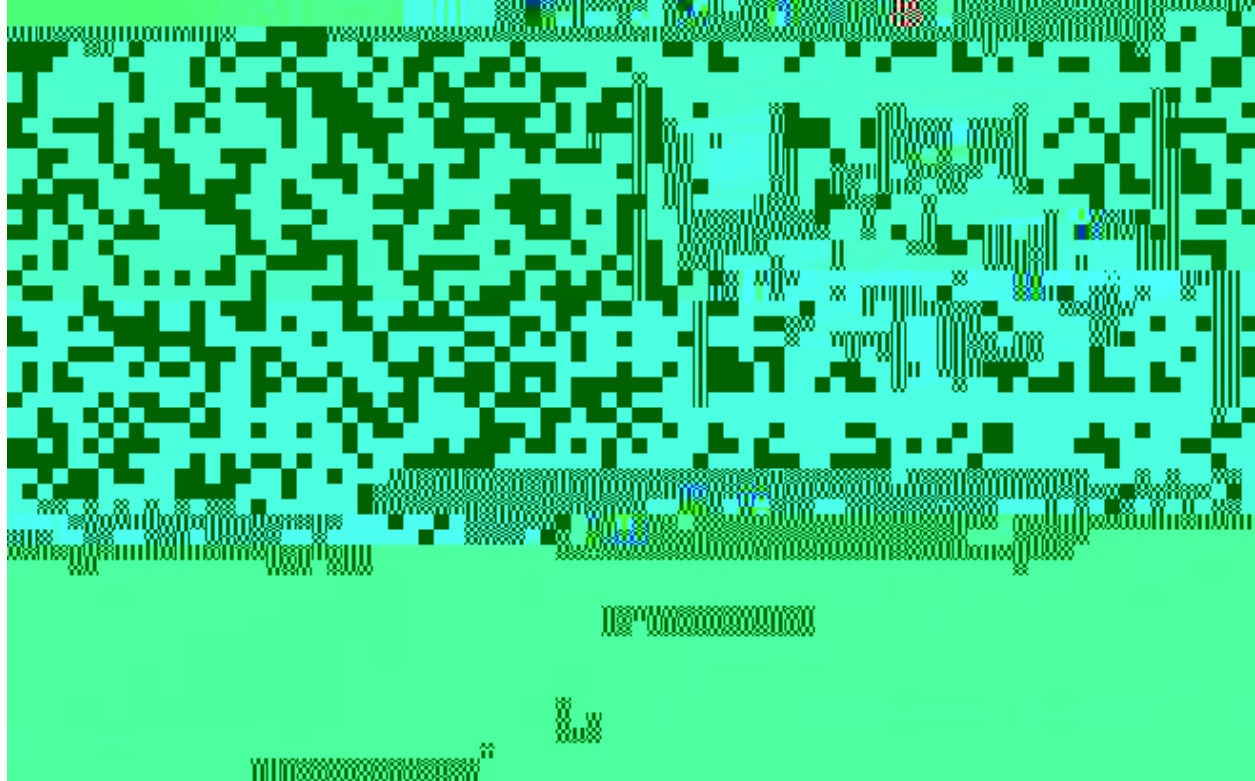
A_{λ} = Absorbance at wavelength λ


ϵ = Molar absorptivity (L mol⁻¹ cm⁻¹)


c = Concentration (mol L⁻¹)

d = Path length (cm)

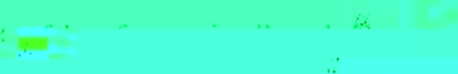
The light source (far right) sends light via an input fiber into a cuvette holder (bottom center). The light interacts with the sample.

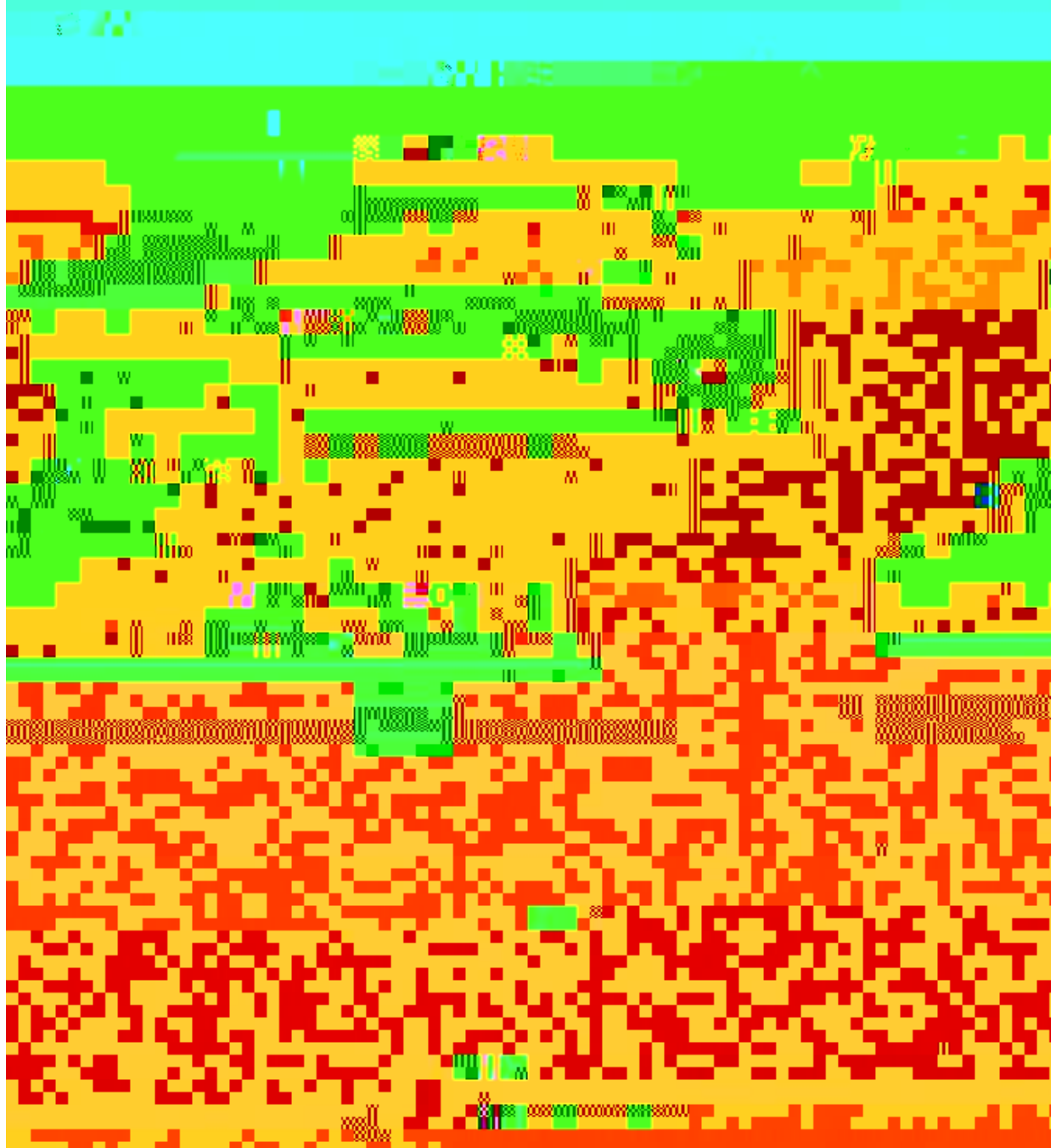


1. Place SpectraSuite in Scope mode by clicking the Scope () icon in the Experiment mode toolbar or selecting Processing | Processing Mode | Scope from the menu.

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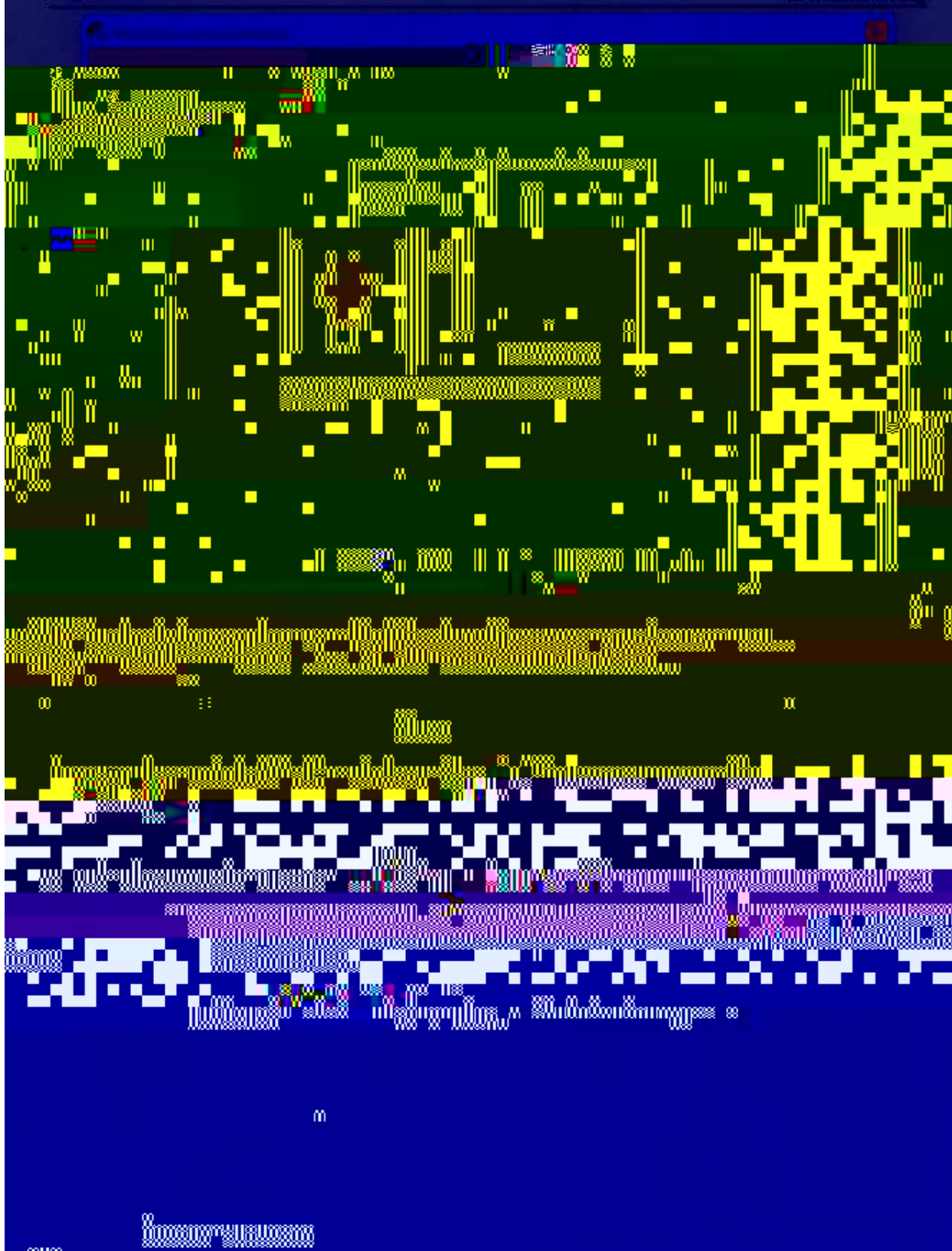
2. Ensure that the entire signal is on scale. The intensity of the reference





The screenshot displays the 'Set Acquisition Parameters wizard (2 of 4)' in the Ocean Optics software. The interface is divided into several sections:

- Steps:** A list of steps: 1. Data Source, 2. Acquisition Parameters (highlighted in blue), 3. Integration Time, 4. Smoothing.
- Integration Time:** A control panel with 'Integration time' set to 100 milliseconds, an 'Enable' checkbox, and a 'Scan to average' dropdown set to 1.
- Smoothing:** A control panel with a 'Smoothing width' dropdown set to 1.
- Preview:** A graph showing a signal with a peak. The 'Last peak value' is 3210.0. The y-axis is labeled 'Value' and ranges from 0 to 4000. The x-axis is labeled 'Time' and ranges from 0 to 3400.
- Instructions:** A text box that reads: 'Turn on the light source and set the integration time so that the peak value reaches the recommended level.'
- Controls:** A toolbar with icons for play, stop, and refresh.
- Bottom Panel:** A large area for the data plot, currently showing a noisy signal. A toolbar at the bottom includes zoom, pan, and other plot controls.







selected in the Data Sources and Data Views panes changes to **ABSORBANCE MODE**.

- The units listed on the Graph panel change to **Absorbance (OD)**.

10. To permanently save the spectrum to disk, click the Save Spectra () icon on the toolbar.

Note

When you change any of the following settings, you must store a new reference and blank spectra: averaging, smoothing, fiber size, and so on.